

With respect to paragraph 7 of the Office Action, however, applicants would request reconsideration on grounds that there is nothing in the rules of the Patent and Trademark office to preclude the use of the dotted lines in Figs. 2a and 2b to indicate a variation that is more easily understood in the context of the illustrated embodiment but which does not warrant the expense of an additional drawing. Indeed, applicants believe that the nature of these variations is better understood with reference to the underlying embodiment. Reconsideration is therefore requested.

In light of the above statement that the attached substitute specification does not contain any new matter, entry of that document is respectfully requested.

The objection to the disclosure in paragraph 9, subparagraph A is not understood in as much as the objection is not raised in the context of either the claims or in connection with a specific portion of the disclosure. The issue of enablement is raised only with regard to claimed subject matter. Of course, applicants are quite anxious and willing to assist in any clarification that may be helpful. We merely ask for further amplification of the Examiners' concerns in light of the foregoing comments.

The rejection of claims 1-16 under 35 USC § 112, ¶ 2 is traversed, and reconsideration is requested.

The rejection with regard to the alleged omission of essential structural elements is not seen to be well taken, particularly where the elements referred to are not necessarily asserted by the Examiner to be essential to patentability to distinguish the subject matter over prior art. Applicants submit that it is the

function of the specification, not the claims, to set forth the necessary structural operative relationships unless the same is necessary for purposes of defining the invention over the prior art.

Applicants also respectfully disagree with the assertion that two ranges of claims, in the context of the present application, create any lack of particularity or distinctness. One of ordinary skill in the art would have no problems in discerning the ranges covered by the claims, particularly in light of the use of the word “preferably”, or “particularly preferably”, or “particularly.” Nevertheless, the newly submitted claims above are deemed to address any objections or grounds unrelated to patentability that may be arguably made on the grounds set forth in the Office Action.

The rejection of claims 1, 3-6, 8 and 15 is being anticipated by Yamanishi under 35 USC § 102(b) is traversed, and reconsideration is requested in light of the newly submitted claims. Unlike the present invention as set forth in the new claims, the Yamanishi sputtering apparatus does not employ first and second oblique axes in which one or more toroidal magnetic fields is around the first of the axes with a symmetric field polarity in a cutting plain through the new sputter surface, the cutting plain containing the first axis. There is not the slightest suggestion of such an arrangement in the Yamanishi apparatus which uses a sputtering source in which the polarity of the magnetic field switches along the target surface and the magnetic field pattern does not form a toroidal field. Thus, Yamanishi neither teaches nor suggests, and in fact teaches away from the electron-trap toroidal magnetic field shown in Fig. 10 of the Yamanishi patent by which, below the toroidal magnetic field pattern a very high plasma

density is reached. That is, the Yamanishi patent teaches that the use of a toroidal magnetic field does not result in a uniformly sputtered target and should be avoided.

Applicants have been able to effectively use at least one magnetic toroidal field around the axis with symmetric polarity so as to improve thickness homogeneity without sacrificing sputter rate. Thus, the Yamanishi patent, either alone or in proported combination with the other cited prior art, does not teach the present invention and certainly does not constitute an anticipatory reference.

For similar reasons the rejection of claims 1, 3, 4, 6, 7, 9-12 and 15 as being anticipated by Lamont under 35 USC § 102(b) is traversed. Reconsideration is requested on grounds that the magnetic field pattern shown in Fig. 1 of Lamont, makes it impossible to obtain a toroidal magnetic field pattern. In this connection, applicants attach a sketch using Fig. 1 of Lamont which shows that when considered along the field track, there is no symmetrical polarity with respect to the central axis of the sources which would produce the field pattern shown in Fig. 10 of Yamanishi. As there is no closed loop toroidal field pattern in the Lamont sputtering apparatus, there can also be no electron "racetrack" forming an electron trajectory along the toroidal field pattern. In other words, the Lamont apparatus does not use a magnetron source. While it does offer very high sputtering rates, it does not provide uniform sputtering. That patent merely teaches that the sputtering source surface should be inclined with respect to the substrate surface to be sputter coated in order to achieve planarization of the resulting coating on that surface where the insulation layer

is formed with small holes. The key feature of the Lamont apparatus is to have a substrate RF axitation within a specified range. We would further note in Fig. 1 of Lamont that the NS polarities and magnetic field pattern are substantially different from that of the present invention in that, in particular, the polarity of the magnetic field considered from N to S is not symmetrical with respect to the source axis. Taken in a cutting plain through the target source containing the source's axis, the field polarity is equally directed from N to S and from N to S or as to result in an additional pattern over the central area. As noted above, the magnetic field pattern produced by the apparatus shown in Fig. 1 of Lamont will not produce a toroidal pattern.

For the foregoing reasons, the rejection of claim 16 as being unpatentable over Yamanishi or Lamont in view of Namiki or Maydan, the rejection of claim 14 as being unpattentable over Yamanishi or Lamont in view of Tateshi or Moslehi, the rejection of claims 1-4, 6, 7, 9-12 and 16 is being unpatentable over JP '864 in view of Lamont or Yamanishi, the rejection of claim 14 as being unpatentable over JP '864 in view of Lamont or Yamanishi and further in view of Tateshi or Moslehi, and the rejection of claim 16 as being unpatentable over JP '864 in view of Lamont or Yamanishi and further in view of Namiki or Maydan, all under 35 USC § 103(a) are traversed, and reconsideration is requested.

Assuming arguendo that the secondary and tertiary references would have been combinable in the manner set forth in the Office Action, the resulting hypothetical combination still would not have taught or suggested the present invention as set forth in the claims above.

Accordingly, favorable action upon the claims submitted above is earnestly solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #622/48561).

Respectfully submitted,

December 14, 2001



James F. McKeown
Registration No. 25,406

CROWELL & MORING, LLP
P.O. Box 14300
Washington, DC 20044-4300
Telephone No.: (202) 624-2500
Facsimile No.: (202) 628-8844